

## RAW SEQUENCE LISTING

DATE: 05/11/2001

PATENT APPLICATION: US/09/843,598

TIME: 11:29:24

Input Set : A:\01997.525002.SEQLIST.TXT

Output Set: N:\CRF3\05112001\I843598.raw

ENTERED

```

4 <110> APPLICANT: Horvitz, H. Robert
5   Ranganathan, Rajesh
7 <120> TITLE OF INVENTION: CeSERT GENES, PROTEINS, AND MODULATORY
8   COMPOUNDS
10 <130> FILE REFERENCE: 01997/525002
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/843,598
C--> 12 <141> CURRENT FILING DATE: 2001-04-26
12 <150> PRIOR APPLICATION NUMBER: US 60/200,549
13 <151> PRIOR FILING DATE: 2000-04-26
15 <160> NUMBER OF SEQ ID NOS: 11
17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 2016
21 <212> TYPE: DNA
22 <213> ORGANISM: Caenorhabditis elegans
24 <400> SEQUENCE: 1
25 atgctgcgtt ggcattccgt cggaggaaa cagcaccage agctgcaage tgaactctcc 60
26 agcgggtgcag ctagcatgct gtccgcgcca gaatctcggc gtgtcagccg atcgatgagt 120
27 gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gccctaaca 180
28 ctaaccgtat caacttcaca cagtattgat ccaaagagc caatcgctgc tctcggtggt 240
29 ctcacaccga caaaagaagg ccgagttgcc gcactgcgaa gacggagttc aatggttcgt 300
30 gataaatggg caactaaaat ggaattcctg ttggccgtcg ttgatatgc agtgatttg 360
31 ggtaatatat ggcgattccc atcagtatgc tacaaacacg gtggcgggtg tttcttatt 420
32 ccataattca ttatgttaat gatcggagga cttcccatgt tctatatgga acttgtaact 480
33 ggacaatttc atcggtcagg atgtgttagt atatggagaa aggtgtgcc gttgtttcga 540
34 ggaatcggtt acggtatctg ctgtatttgc acgttcatac ccattttota taatgcgac 600
35 atcgctcaag cgtctatttt tgctattgtt tcactttcaa aaatttgga ttccgaagtt 660
36 ccgtgggctg catgtggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720
37 acaatatcta gaaatgggac accattgacc actccgtcag aggaatatta ttatacaaa 780
38 gtccttgaag ttcaaaaatc aacaggatc gatgatcttg gaggtgtaa aacttcaatg 840
39 gcagtgtgcc tactcgctgt atttataatg gtttactttg ctctttggaa gggccacag 900
40 tegtctggaa aaattgtttg ggtgactgca acagctccat atattattct aagtattctt 960
41 cttatacgtg gacttcttct tccgtggaca aagaatggtc tctattatta tgtgacaccg 1020
42 gatttcgaga aactcaagga tccgtcagta tggctcggtg ctgctacaca gattttcttc 1080
43 tcaattggac caggattcgg ggtgctgctc gcgctgagca gttacaatga ttttaacaat 1140
44 aactgctatc gtgacgctg cactatctcc atcattaaact gtgccacgtc attcttttcc 1200
45 ggatgtgttg tattctctac acttggtat atgtctcttc tcaccaataa accgattaat 1260
46 gaggtagttg gagaacacga cgcctctcta atcttcatcg tctaccccca agccctcgca 1320
47 acaatggatt acagttgttt ctggtctttc atctttttcg tcatgctaata cactotttga 1380
48 atcgactcca cttttgctgg aatcgaagca tttatcacgg gattctgtga tgagtcgagg 1440
49 tttttgtcga aaaatcgaaa atggttcgtg ctggtcattt gcatcattta ttacttctc 1500
50 agctttcccg ctatcagcta tgggtgtcaa ttcgtgatcc cgttccctgga tgaatatgga 1560
51 gtttctctat cagttctgtt cattgtcacc tgcgaaatga ttgcagtctg ctgggtttac 1620
52 ggtgttgatc agttctcaaa agatattcgt gctatgctgg gattctatcc tggaatttat 1680
53 tggagagtct gctggacgtg ttctccggtt tttataagtg tgatattcat tatgactgtc 1740
54 tacaatagtt cgttcaagcc aattcaaatg gctagctaca ctttccctctg gtggagtggt 1800
55 attttgggtt ggttccctgag acttctctca gtccctcgaa ttcctgtctt cgcaataatc 1860

```

## RAW SEQUENCE LISTING

DATE: 05/11/2001

PATENT APPLICATION: US/09/843,598

TIME: 11:29:24

Input Set : A:\01997.525002.SEQLIST.TXT

Output Set: N:\CRF3\05112001\I843598.raw

```

56 tacctgctca gcggtaccgg cacactttac gaacgcttcc gatgggcaat aactcctcaa 1920
57 caacgccgaa attcggcgac ttctctcgcc gctgatccca cacaaattat cgatagttct 1980
58 cttttagatc caattcatac acttactcca gtttag 2016
60 <210> SEQ ID NO: 2
61 <211> LENGTH: 2016
62 <212> TYPE: DNA
63 <213> ORGANISM: Caenorhabditis elegans
65 <400> SEQUENCE: 2
66 atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
67 agcgggtgcag ctagcatgct gtccgcgccg gaatctcggc gtgtcagccg atcgatgagt 120
68 gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gccctaaca 180
69 ctaaccggtat caacttcaca cagtattgat ccaaatagac caatcgctgc tctcgggtgt 240
70 ctcacaccga caaaagaagg ccgagttgcc gcactgcgaa gacggagttc aatggttcgt 300
71 gataaatggg caactaaaat ggaattcctg ttggccgtcg ttggatatgc agttgatttg 360
72 ggtaatatat ggcgattccc atcagtatgc tacaaacacg gtggcggtgc tttctttatt 420
73 ccatatttca ttatgttaat gatcggagga cttcccatgt tctatatgga acttgtaact 480
74 ggacaatttc atcggtcagg atgtgttagt atatggagaa aggtgtgccc gttgtttcga 540
75 ggaatcgggt acggtatctg ctgtatttgc acgttcatac ccattttcta taatgcgata 600
76 atcgtctcaag ccgtctattt tgctattgtt tcactttcaa aaatttgga ttcogaagtt 660
77 ccgtgggctg catgaggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720
78 acaatatcta gaaatgggac accattgacc actccgtcag aggaatatta tttatacaaa 780
79 gtccctgaag ttcaaaaatc aacaggattc gatgatcttg gaggtgtaaa aacttcaatg 840
80 gcagtgtgcc tactcgtctg atttataatg gtttactttg ctctttgga gggccacag 900
81 tcgtctggaa aaattgtttg ggtgactgca acagctccat atattattct aagtattctt 960
82 cttatacgtg gacttcttct tcctggagca aagaatggtc tctattatta tgtgacaccg 1020
83 gatttcgaga aactcaagga tcctgcagta tggtcggctg ctgctacaca gattttcttc 1080
84 tcaattggac caggattcgg ggtgctgctc gcgctgagca gttacaatga ttttaacaat 1140
85 aactgctatc gtgacgcgt cactatctcc atcattaaat gtgccacgtc attcttttcc 1200
86 ggatgtgttg tattctctac acttggtctat atgtctcttc tcaccaataa accgattaat 1260
87 gaggtagttg gagaacacga cgctctctca atcttcacg tctaccccca agccctcgca 1320
88 acaatggatt acagttgttt ctggtctttc atctttttcg tcatgcta at cactcttgga 1380
89 atcgactcca cttttgctgg aatcgaagca tttatcacgg gattctgtga tgagtcgagg 1440
90 tttttgtcga aaaatcgaaa atggttcgtg ctggtcattt gcatacttta ttaacttctc 1500
91 agctttcccg ctatcagcta tgggtgtcaa ttcgtgatcc cgttcctgga tgaatatgga 1560
92 gtttctctat cagttctgtt cattgtcacc tgcgaaatga ttgcagtcgt ctgggtttac 1620
93 ggtgttgatc agttctcaaa agatattcgt gctatgctgg gattctatcc tggaaattat 1680
94 tggagagtct gctggacgtg ttctccggtt tttataagtg tgatattcat tatgactgtc 1740
95 tacaatagtt cgttcaagcc aattcaaatg gctagctaca ctttccctg gtggaggtgt 1800
96 attttggtt ggttcctgag acttctctca gtccctcgaa ttcctgtctt cgcaataatc 1860
97 tacctgctca gcggtaccgg cacactttac gaacgcttcc gatgggcaat aactcctcaa 1920
98 caacgccgaa attcggcgac ttctctcgcc gctgatccca cacaaattat cgatagttct 1980
99 cttttagatc caattcatac acttactcca gtttag 2016
101 <210> SEQ ID NO: 3
102 <211> LENGTH: 2016
103 <212> TYPE: DNA
104 <213> ORGANISM: Caenorhabditis elegans
106 <400> SEQUENCE: 3
107 atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
108 agcgggtgcag ctagcatgct gtccgcgccg gaatctcggc gtgtcagccg atcgatgagt 120

```

## RAW SEQUENCE LISTING

DATE: 05/11/2001

PATENT APPLICATION: US/09/843,598

TIME: 11:29:24

Input Set : A:\01997.525002.SEQLIST.TXT

Output Set: N:\CRF3\05112001\I843598.raw

```

109 gttaaagcac cgacagcatc agaatacatg ccattatcag ttgccgataa gcccctaaca 180
110 ctaaccggtat caacttcaca cagtattgat ccaaagtagc caatcgctgc tctcgggtggt 240
111 ctacacaccga caaaagaagg ccgagttgac gcaactgcga gacggagttc aatgggttcgt 300
112 gataaatggg caactaaaat ggaattcctg ttggccgctg ttggatatgc agttgatttg 360
113 ggtaatatat ggcgattccc atcagtatgc tacaacacg gtggcggtgc tttcttatt 420
114 ccatatttca ttatgttaat gatcgaggga cttcccatgt tctatatgga acttgacttc 480
115 ggacaatttc atcgggtcagg atgtgttagt atatggagaa aggtgtgccc gttgtttcga 540
116 ggaatcggtt acgggtattc ctgtatttgc acgttcatag ccattttcta taatgcgac 600
117 atcgctcaag ccgtctattt tgctattgtt tcactttcaa aaatttggga ttccgaagtt 660
118 ccgtgggctg catgtggcaa tccgtggaat acaccgagat gctcagatga cctcaacgtg 720
119 acaatatcta gaaatgggac accattgacc actccgtcag aggaatatta tttatacaaa 780
120 gtocctgaag ttcaaaaatc aacaggattc gatgatcttg gaggtgtaaa aacttcaatg 840
121 gcagtgtgac tactcgctgt atttataatg gtttactttg ctctttggaa ggttccacag 900
122 tcgtctggaa aaattgtttg ggtgactgca acagctccat atattattct aagtattctt 960
123 cttatacgtg gacttcttct tctggagca aagaatggtc tctattatta tgtgacaccg 1020
124 gatttcgaga aactcaagga tccgtgcagta tggctgctg ctgctacaca gattttcttc 1080
125 tcacttgac caggattcgg ggtgctgctc gcgctgagca gttacaatga ttttaacaat 1140
126 aactgctatc gtgacgcctg cactatctcc atcattaact gtgcaacgtc attcttttcc 1200
127 ggatgtgttg tattctctac acttggctat atgtctcttc tcaccaataa accgattaat 1260
128 gaggtagtgt gagaacacga cgcctctcta atcttcatcg tctaccccca agccctcgca 1320
129 acaatggatt acagttgttt ctggtctttc atctttttcg tcatgcta at cactcttggg 1380
130 atcgactcca cttttgttgg aatcgaaagca tttatcacgg gattctgtga tgaagtcagg 1440
131 tttttgtcga aaaatcgaaa atggttctgt ctggtcattt gcatcattta ttacttctc 1500
132 agctttcccg ctatcagcta tgggtgtcaa ttctgtatcc cgttctctgga tgaatatgga 1560
133 gtttctctat cagttctgtt cattgtcacc tgcgaaatga ttgcagtctg ctggttttac 1620
134 ggtgttgatc agttctcaaa agatattcgt gctatgctgg gattctatcc tggaaatttat 1680
135 tggagagtct gctggacgtg ttcttcggtt tttataagtg tgatattcat tatgactgtc 1740
136 tacaatagtt cgttcaagcc aattcaaatg gctagctaca ctttccctg gtggagtgtt 1800
137 attttgggtt ggttctgtag acttctctca gtctcgcga ttcctgtctt cgcaataatc 1860
138 tacctgctca gcggtaccgg cacactttac gaacgcttcc gatgggcaat aactcctcaa 1920
139 caacgccgaa attcggcgac ttctctcgcc gctgatccca cacaaattat cgatagttct 1980
140 cttttagatc caattcatac acttactcca gtttag 2016

```

142 &lt;210&gt; SEQ ID NO: 4

143 &lt;211&gt; LENGTH: 1370

144 &lt;212&gt; TYPE: DNA

145 &lt;213&gt; ORGANISM: Caenorhabditis elegans

147 &lt;400&gt; SEQUENCE: 4

```

148 atgctgcgtt ggcattccgt ccggaggaaa cagcaccagc agctgcaagc tgaactctcc 60
149 agcgggtcag ctagcatgct gtccgcgcca gaatctggc gtgtcagccg atcgatgagt 120
150 gttaaagata caaagtcttt gaagttcaaa aatcaacagg attcgatgat cttggagggtg 180
151 taaaaacttc aatggcagtg tgcctactcg ctgtatttat aatggtttac tttgtcttt 240
152 ggaagggtcc acagtcgtct ggaaaaattg tttgggtgac tgcaacagct ccatatatta 300
153 ttctaagtat tcttcttata cgtggaactt ttcttctgga agcaagaat ggtctctatt 360
154 attatgtgac accggatttc gagaaactca aggatcctgc agtatggctg gctgctgcta 420
155 cacagatttt cttctcactt ggaccaggat tcggggtgct gctcgcgctg agcagttaca 480
156 atgattttta caataactgc tatcgtgacg ccgtcactat ctccatcatt aactgtgcca 540
157 cgtcattctt ttccggatgt gttgtattct ctacacttgg ctatatgtct cttctcacca 600
158 ataaaccgat taatgaggtg gttggagaac acgacgcctc tctaactctt atcgtctacc 660
159 cccaagccct cgcaacaatg gattacagtt gtttctggtc tttcatcttt ttctgcatgc 720

```

RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/843,598

DATE: 05/11/2001  
 TIME: 11:29:24

Input Set : A:\01997.525002.SEQLIST.TXT  
 Output Set: N:\CRF3\05112001\I843598.raw

```

160 taatcactct tgggaatcgac tccacttttg ctggaatcga agcattttatc acggggattct 780
161 gtgatgagtc gaggtttttg tcgaaaaatc gaaaatgggt cgtgctggtc atttgcataca 840
162 tttattactt cctcagcttt cccgctatca gctatgggtg tcaattcgtg atcccgttcc 900
163 tggatgaata tggagtttct ctatcagttc tgttcattgt cacctgcgaa atgattgcag 960
164 tctgctgggt ttacgggtgt gatcagttct caaaagatat tcgtgctatg ctggggattct 1020
165 atcctggaat ttattggaga gtctgctgga cgtgttctcc ggtttttata agtgtgatat 1080
166 tcattatgac tgtctacaat agttcgttca agccaattca aatggctagc tacactttcc 1140
167 cctgggtggag tggtattttg ggttgggttc tgagacttct ctcagtcttc gcaattcctg 1200
168 tcttcgcaat aatctacctg ctcagcggta ccggcacact ttacgaacgc ttccgatggg 1260
169 caataactcc tcaacaacgc cgaaattcgg cgacttctct cgccgctgat cccacacaaa 1320
170 ttatcgatag ttctctttta gatccaattc atacacttac tccagtttag 1370
172 <210> SEQ ID NO: 5
173 <211> LENGTH: 671
174 <212> TYPE: PRT
175 <213> ORGANISM: Caenorhabditis elegans
177 <400> SEQUENCE: 5
178 Met Leu Arg Trp His Ser Val Arg Arg Lys Gln His Gln Gln Leu Gln
179 1 5 10 15
180 Ala Glu Leu Ser Ser Gly Ala Ala Ser Met Leu Ser Ala Pro Glu Ser
181 20 25 30
182 Arg Arg Val Ser Arg Ser Met Ser Val Lys Ala Pro Thr Ala Ser Glu
183 35 40 45
184 Tyr Met Pro Leu Ser Val Ala Asp Lys Pro Leu Thr Leu Thr Val Ser
185 50 55 60
186 Thr Ser His Ser Ile Asp Pro Asn Glu Pro Ile Ala Ala Leu Gly Gly
187 65 70 75 80
188 Leu Thr Pro Thr Lys Glu Gly Arg Val Ala Ala Leu Arg Arg Arg Ser
189 85 90 95
190 Ser Met Val Arg Asp Lys Trp Ala Thr Lys Met Glu Phe Leu Leu Ala
191 100 105 110
192 Val Val Gly Tyr Ala Val Asp Leu Gly Asn Ile Trp Arg Phe Pro Ser
193 115 120 125
194 Val Cys Tyr Lys His Gly Gly Gly Ala Phe Leu Ile Pro Tyr Phe Ile
195 130 135 140
196 Met Leu Met Ile Gly Gly Leu Pro Met Phe Tyr Met Glu Leu Val Leu
197 145 150 155 160
198 Gly Gln Phe His Arg Ser Gly Cys Val Ser Ile Trp Arg Lys Val Cys
199 165 170 175
200 Pro Leu Phe Arg Gly Ile Gly Tyr Gly Ile Cys Cys Ile Cys Thr Phe
201 180 185 190
202 Ile Ala Ile Phe Tyr Asn Ala Ile Ala Gln Ala Val Tyr Phe Ala
203 195 200 205
204 Ile Val Ser Leu Ser Lys Ile Trp Asp Ser Glu Val Pro Trp Ala Ser
205 210 215 220
206 Cys Gly Asn Pro Trp Asn Thr Pro Arg Cys Ser Asp Asp Leu Asn Val
207 225 230 235 240
208 Thr Ile Ser Arg Asn Gly Thr Pro Leu Thr Thr Pro Ser Glu Glu Tyr
209 245 250 255
210 Tyr Leu Tyr Lys Val Leu Glu Val Gln Lys Ser Thr Gly Phe Asp Asp

```

## RAW SEQUENCE LISTING

DATE: 05/11/2001

PATENT APPLICATION: US/09/843,598

TIME: 11:29:24

Input Set : A:\01997.525002.SEQLIST.TXT

Output Set: N:\CRF3\05112001\I843598.raw

```

211          260          265          270
212 Leu Gly Gly Val Lys Thr Ser Met Ala Val Cys Leu Leu Ala Val Phe
213          275          280          285
214 Ile Met Val Tyr Phe Ala Leu Trp Lys Gly Pro Gln Ser Ser Gly Lys
215          290          295          300
216 Ile Val Trp Val Thr Ala Thr Ala Pro Tyr Ile Ile Leu Ser Ile Leu
217 305          310          315          320
218 Leu Ile Arg Gly Leu Leu Pro Gly Ala Lys Asn Gly Leu Tyr Tyr
219          325          330          335
220 Tyr Val Thr Pro Asp Phe Glu Lys Leu Lys Asp Pro Ala Val Trp Ser
221          340          345          350
222 Ala Ala Ala Thr Gln Ile Phe Phe Ser Leu Gly Pro Gly Phe Gly Val
223          355          360          365
224 Leu Leu Ala Leu Ser Ser Tyr Asn Asp Phe Asn Asn Asn Cys Tyr Arg
225          370          375          380
226 Asp Ala Val Thr Ile Ser Ile Ile Asn Cys Ala Thr Ser Phe Phe Ser
227 385          390          395          400
228 Gly Cys Val Val Phe Ser Thr Leu Gly Tyr Met Ser Leu Leu Thr Asn
229          405          410          415
230 Lys Pro Ile Asn Glu Val Val Gly Glu His Asp Ala Ser Leu Ile Phe
231          420          425          430
232 Ile Val Tyr Pro Gln Ala Leu Ala Thr Met Asp Tyr Ser Cys Phe Trp
233          435          440          445
234 Ser Phe Ile Phe Phe Val Met Leu Ile Thr Leu Gly Ile Asp Ser Thr
235          450          455          460
236 Phe Ala Gly Ile Glu Ala Phe Ile Thr Gly Phe Cys Asp Glu Ser Arg
237 465          470          475          480
238 Phe Leu Ser Lys Asn Arg Lys Trp Phe Val Leu Val Ile Cys Ile Ile
239          485          490          495
240 Tyr Tyr Phe Leu Ser Phe Pro Ala Ile Ser Tyr Gly Gly Gln Phe Val
241          500          505          510
242 Ile Pro Phe Leu Asp Glu Tyr Gly Val Ser Leu Ser Val Leu Phe Ile
243          515          520          525
244 Val Thr Cys Glu Met Ile Ala Val Cys Trp Phe Tyr Gly Val Asp Gln
245          530          535          540
246 Phe Ser Lys Asp Ile Arg Ala Met Leu Gly Phe Tyr Pro Gly Ile Tyr
247 545          550          555          560
248 Trp Arg Val Cys Trp Thr Cys Ser Pro Val Phe Ile Ser Val Ile Phe
249          565          570          575
250 Ile Met Thr Val Tyr Asn Ser Ser Phe Lys Pro Ile Gln Met Ala Ser
251          580          585          590
252 Tyr Thr Phe Pro Trp Trp Ser Val Ile Leu Gly Trp Phe Leu Arg Leu
253          595          600          605
254 Leu Ser Val Leu Ala Ile Pro Val Phe Ala Ile Ile Tyr Leu Leu Ser
255          610          615          620
256 Gly Thr Gly Thr Leu Tyr Glu Arg Phe Arg Trp Ala Ile Thr Pro Gln
257 625          630          635          640
258 Gln Arg Arg Asn Ser Ala Thr Ser Leu Ala Ala Asp Pro Thr Gln Ile
259          645          650          655

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/843,598

DATE: 05/11/2001

TIME: 11:29:25

Input Set : A:\01997.525002.SEQLIST.TXT

Output Set: N:\CRF3\05112001\I843598.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No  
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date